



PATENT ATTORNEY DOCKET NO. 00786/450005

Certificate of Mailing	: Date of Deposit:	July 29, 2004	

I hereby certify under 37 C.F.R. § 1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated above and is addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Alma Woodberry

Printed name of person mailing correspondence

Signature of person mailing correspondence

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:

Becerra et al.

Art Unit:

3737

Serial No.:

09/822,585

Examiner:

S. J. Shaw

Filed:

March 30, 2001

Customer No.:

21559

Title:

METHOD AND APPARATUS FOR OBJECTIVELY MEASURING

PAIN, PAIN TREATMENT AND OTHER RELATED TECHNIQUES

Mail Stop Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Applicants submit the references listed on the enclosed Form PTO-1449.

Submission of this statement is not a representation that a search has been made, nor is the inclusion of information in this statement an admission that the information is material to patentability.

Under 35 U.S.C. § 120, this application relies on the earlier filing date of application serial number 09/729,665, which was filed on December 4, 2000. The references listed on the enclosed Form PTO-1449 were submitted to and/or cited by the

Office in the prior application and, therefore, copies of these references are not provided for this application.

This statement is being filed after a first Office Action on the merits, but before the mailing of a final Office Action or a Notice of Allowance. A check for \$180.00 in payment of the late submission fee set forth in 37 C.F.R. § 1.17(p) is enclosed.

If there are any charges or any credits, please apply them to Deposit Account No. 03-2095.

Respectfully submitted,

Date: 29 Opely 2004

karen L. Elbing, Ph.D.

Reg. No. 35,238

Clark & Elbing LLP 101 Federal Street

Boston, MA 02110

Telephone: 617-428-0200 Facsimile: 617-428-7045



TECHNOLOGY CENTER RS 1 of 1

00786/450005

	FORM PTO-1449		TMENT OF CO		Attorney Docket No.		00786/450005		
(MODIFIED)		PATENT AN	D TRADEMAR	K OFFICE	Serial No.		09/822,58	09/822,585	
	WEODIAT	011 D1001 001	.D.E		Applicant		Becerra e	et al.	
	STATEMEN	ON DISCLOSU IT BY APPLICA	NT		Filing Date		March 30	, 2001	
	(Ose several)	sheets if neces	sary)		Group		3737		
(37 C.F.R. § 1	37 C.F.R. § 1.98(b))						July 29, 2	2004	
U.S. PATENTS									
Examiner's Initials	Patent Number	Issue Date		Patentee		Class	Subclass	Filing Date (If Appropriate)	
	4,960,815	10/2/90	Moos						
	6,298,258	10/2/01	Heid et al.						
	6,517,812	2/11/03	Breiter et al.						
	OTHER DOCL	JMENTS (INCL	UDING AUTHO	R, TITLE, D	ATE, PLAC	E OF PUBL	ICATION)		
	Becerra et al. "Early Activation of Reward/Aversive Circuitry Following Noxious Thermal Stimuli: Dissociation of Motivation-Emotion Circuitry from Sensory-Discriminative Circuitry" (Published as "Reward Circuitry Activation by Noxious Thermal Stimuli") Neuron. 2001 32:927-46.								
-									
EXAMINER	EXAMINER DAT				CONSIDERED				
	itial citation conside ext communication		through citation	if not in co	nformance a	nd not cons	sidered. Incl	ude copy of this	

Pursuant to 37 C.F.R. §1.98(d) copies of references which were previously cited by or mitted to the Patent Office in parent Pursuant to 37 C.F.R. §1.98(d) copies of the references which were prepared to No. 09/729,665, filed December 4,2000, are not enclosed. Page 1 of 15 Form PTO-1449 ATTY. DOCKET NO. U.S. DEPARTMENT OF COMMERCE APPLICATION NO. (Rev. 8-83) PATENT AND TRADEMARK OFFICE MGH-004BUS 09/822,585 FORMATION DISCLOSURE CITATION APPLICANT Lino R. Becerra

PECENE 2004
FILING DATE
March 30, 2001

U.S. BASENT DOCUMENTS **APPLICANT** Lino R. Becerra et al. (Use several sheets if necessary) **GROUP EXAMINER** FILING DATE IF INITIAL DOCUMENT NUMBER DATE NAME **CLASS** SUBCLASS APPROPRIATE* 5 6 6 2 2 9/2/97 Heid FOREIGN PATENT DOCUMENTS TRANSLATION DOCUMENT NUMBER DATE COUNTRY **CLASS SUBCLASS** YES NO * WO 97 33515 A 9/18/97 **PCT** OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.) Adolphs, R., Tranel, D., Damasio, H., and Damasio, A. (1994). Impaired recognition of emotion in facial expressions following bilateral damage to the human amygdala. Nature 372, 669-672. Adolphs, R., Tranel, D., Damasio, H., and Damasio, A. (1995). Fear and the human amygdala. J. Neurosci. Sept. 15, 5879-5891. Aggleton, J.P., Burton, M.J., and Passingham, R.E. (1980). Cortical and subcortical afferents to the amygdala in the rhesus monkey (Macaca mulatta). Brain Res. 190, 347-368. Adler, L.J., Gyulai, F.E., Diehl, D.I., Mintun, M.A., Winter, P.M., and Firestone, L.L (1997). Regional brain activity changes associated with fentanyl analgesia elucidated by positron emission tomography. Anesth, Analg. 84, 120-126. Aguirre GK, Zarahm E, D'Esposito M. A critique of the use of the Kolmogorov-Smimov (KS) statistic for the analysis of BOLD fMRI data. Magn Reson Med. 1998 Mar;39(3):500-5. Albanese A, Minciacchi D. Organization of the ascending projections from the ventral tegmental area: a multiple fluorescent retrograde tracer study in the rat. J Comp Neurol. 1983 June I; 2 1 6(4):406-20. Altier N, Stewart J. Dopamine receptor antagonists in the nucleus accumbens attenuate analgesia induced by ventral tegmental area substance P or morphine and by nucleus accumbens amphetamine. J Pharmacol Exp Ther. 1998 Apr;285(1):208-15. Amaral, D.G., and Price, J.L. (1984). Amydgalo-cortical projections in the monkey (Macaca fascicularis). J. Comp. Neurol. 230, 465-496. Amorapanth P, LeDoux JE, Nader K. Different lateral amygdala outputs mediate reactions and actions elicited bya fear-arousing stimulus. Nat Neurosci. 2000 Jan;3(1):74-9. * Apkarian A V, Darbar A, Krauss BR, Gelnar PA, Szeverenyi NM. Related Articles Differentiating cortical areas related to pain perception from stimulus identification: temporal analysis of fMRI activity. J Neurophysiol. 1999 Jun;81(6):2956-63. * Arvanitogiannis, A., Waraczynski, M., and Shizgal, P. (1996). Effects of excitotoxic lesions of the basal forebrain on MFB self-stimulation. Physiology and Behavior 59(4/5), 795-806. Bain, G. T., and Kornetsky, C. (1987). Naloxone attenuation of the effect of cocaine on rewarding brain stimulation. Life Sciences 40. 1119-1125 Ballantine HT Jr, Cassidy WL, Flanagan NB, Marino R Jr. Stereotaxic anterior cingulotomy for neuropsychiatric illness and intractable pain. J Neurosurg. 1967 May;26(5):488-95. * Bandettini, P.A., Wong, E.C., Hinks, R.S., Tikofsky, R.S., and Hyde, J.S. (1992). Time course EPI of human brain function during task activation, Mag. Res. Med. 25, 390-397.

Barasi S. Responses of substantia nigra neurones to noxious stimulation. Brain Res. 1979 Jul 27;171(1):121-30.

Examiner

Date

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO. MGH-004AUS

APPLICATION NO. 09/729,665

NFORMATION DISCLOSURE CITATION DISCLOSURE CITA

(Use several sheets if necessary)
AUG U 6 2004

APPLICANT Hans C. Breiter et al.

FILING DATE

GROUP 2862

TECHNOLOGY CENTER R3700

December 4, 2000

				U.S. P	PATENT DO	DCUMENTS					
EXAMINER INITIAL		DOCUM	IENT NUMBER		DATE	NAM		CLASS	SUBCLASS	FILING DATE IF APPROPRIATE*	
			OTHER DOCU	JMENTS (ii	ncluding Autho	r, Title, Date, Per	rtinent Page:	s, Etc.)			
	* B	Barch, D.M., Brave lifficulty in human	er, T.S., Nystrom, prefrontal cortex.	L.E., Form Neuropsyd	an, S.D., Noll, chologia 35, 1	D.C., and Cohe 373-1380.	n, J.D. (199	97). Dissocial	ing working men	nory from task	
		Basbaum Al, Field	s HL.Endogenous	s pain cont	rol mechanism	ns: review and hy	ypothesis. A	nn Neurol. 1	978 Nov;4(5):45	1-62.	
	* B	Baune A, Sommer Jeuroimage. 1999	FT, Erb M, Wildg May;9(5):477-89	ruber °, Ka	irdatzki B, Pali	m a, Grodd W. D	ynamical c	luster analys	is of cortical fMR	l activation.	
	* B	laxter, L.R., Schw refrontal cortex gl	artz, J.M., Phelps ucose metabolisn	, M.E., Maz n common	zziotta, J.C., G to three types	uze, B.H., Selin, of depression.	, C.E., Gern Arch Gen Ps	er, R.H., and sychiatry 46,	Sumida, R.M. (*243-250.	1989). Reduction of	
	* B	ecerra L, Breiter I	H, Jenkins L, aona livation-Emotion C	zalez a, Bo Circuitry fro	rsook D. Early m Sensory-Di	Activation of Rescriminative Circ	eward/Avers	sive Circuitry paration).	following Noxiou	s Thermal Stimuli:	
	pı	Becerra, L.R., Breiter, H.C., Stojanovic, M., Fishman, S., Edwards, A., Comite, A.R., Oonzalez, R.G., and Borsook, D. (1999). Human brain activation under controlled thermal stimulation and habituation to noxious heat: an fMRI study. Magnetic Res. in Medicine 41, 1044-1057.									
	* Be	Bechara, A., Damasio, H., Tranel, D., and Damasio, A.R. (1998). Dissociation of working memory from decision making within the human prefrontal cortex. J. Neurosci. 18, 428-437.									
	* Be	Behbehani MM. Behaviors. Prog. Neurobiol. 3.247-279. Behbehani MM. Functional characteristics of the midbrain periaqueductal gray. Prog Neurobiol. 1995 Aug;46(6):575-605.									
	* Be	Belliveau, J.W., Kennedy, D.N., McKinsey, R.C., Buchbinder, B.R., Weiskoff, R.M., Cohen, M.S., Vevea, J.M., Brady, T.J., Rosen, B.R. (1991). Functional mapping of the human visual cortex by magnetic resonance imaging. Science 254, 716-719.									
:	* Be	Bench, C.J., Friston, K.J., Brown, R.G., Frackowiak, R.S.J., and Dolan, R.J. (1993). Regional cerebral blood flow in depression measured by positron emission tomography: The relationship with clinical dimensions. Psych. Med. 23, 579-590.									
,	Be ab	ench, C.J., Friston normalities of cer	, K.J., Brown, R.C ebral blood flow i	3., Scott, L. in major de	.C., Frackowia pression. Psyc	k, R.S.J., & Dola ch. Med. 22, 607	an, R.J. (19 '-615.	992). The ana	atomy of melancl	nolia -focal	
•	Be the	ennett, A.J., and Me e periaqueductal o	layer, D.J. (1979) entral gray matte). Inhibition er. Brain Re	of spinal cord es. 172(2), 243	interneurons by 3-257.	narcotic m	icroinjection	and focal electric	cal stimulation in	
1	Be	erkowitz, B.A Cer orphine as determ	reta. K. V., and S ined by radioimm	Spector. S. (nunoassay.	(1974). The in J Phannacol I	fluence of physic Exp Ther. 191(3)	ologic and p), 527-534.	hannacolog	ic factors on the	disposition of	
	Be	erns, G.S., Cohen, 75.	J.D., & Mintun, N	И.А. (1997)	. Brain regions	s responsive to r	novelty in th	e absence o	f awareness. Sc	ence 276, 1272-	
] Be	ster, H. et al., "Th Neurophysiol. 199	e Spino(trigemino 5 Feb; 73(2): 568	o) Pontoam 3-585.	nygdaloid Path	way: Electrophy	siological E	vidence for A	An Involvement i	n Pain Processes.	
*	Bla	ackbum, J., Pfaus,	J., & Phillips, A.	(1992). Do	pamine function	ons in appetitive	and defen	sive behavio	rs. Prog. Neurob	iol. 3, 247-279.	
*	Bla	air et al., Dissociat	ole neural respon	ses to facia	al expressions	of sadness and	anger Brai	n (1999) 122	, 883-893		
*	Bei	rnard JF, Huang o involvement in pa					globus pal	lidus ventrali	s: electrophysiol	ogical evidence for	
*	Bla folk	ckburn, J., Phillip: owing consumptio , 1095-1100.	s, A., Jakubovic, A on of a nutritive m	A., and Fib eal but not	iger, H. (1986 a palatable no). Increased dop on-nutritive sacc	amine meta harine solu	abolism in the tion. Pharma	e nucleus accum icology Biochem	bens and striatum istry and Behavior	
		Date			Examiner						

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO. MGH-004AUS APPLICATION NO.

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

APPLICANT
Hans C. Breiter et dy 6
GROUP

TRADE	- ORYGE	7	December 4, 2000	2862 ^{EN} TER ROTOO						
CHAD		OTHER DOCUMENTS (including Author	or, Title, Date, Pertinent Pages, Etc.)	100						
	*	Blackburn, J., Phillips, A., Jakubovic, A., and Fibiger, H. (198 Behavioral Neuroscience 103(1), 15-23.	9). Dopamine and preparatory behavior: II.	a neurochemical analysis.						
	*	Borod, 1.C., Koff, E., Perlman-Lorch, M., and Nicholas, M. (1 patients. Neuropsychologia 24(2), 169-180.	986). The expression and perception of fac	al emotion in brain-damaged						
	*	Borod, J.C., Koff, E., Perlman-Lorch, M., and Nicholas, M. (1 damage. Arch. Neurology 42, 345- 348.	985). Channels of emotional expression in	patients with unilateral brain						
	*	Botvinick M, Nystrom LE, Fissell K, Carter CS, Cohen JD. Co Nature. 1999 Nov 11 ;402(6758): 179-8l.	onflict monitoring versus selection- for-action	n in anterior cingulate cortex.						
	*	Boxerman, J.L., Bandettini, P.A., Kwong, K.K., Baker, J.R., D contribution to fMRI signal change: Monte Carlo modeling an								
	*	Boynton et al., Linear sysems analysis of functional magnetic 1996, 16(13): 4207-4221	c resonance imaging in human V1, The jour	nal of neuroscience, July 1,						
	*	Bozarth MA, Wise RA. Involvement of the ventral tegmental Res Monogr. 1986;67:190-6.	dopamine system in opioid and psychomoto	or stimulant reinforcement. NIDA						
	*	Braver, T.S., Cohen, J.D., Nystrom, L.E., Jonides, J., Smith, involvement in human working memory. Neuroimage 5(1), 49	E.E., and Noll, D.C. (1997). A parametric st 9-62.	udy of prefrontal cortex						
	*	Breiter HC, BecelTa L, Gonzalez RO, Huffman, EK, Harter K, lenkins L, Comite A, Borsook D. Morphine activates reward circuitry in human brain. (submitted to Neuron). (unpublished)								
	*	Breiter HC, EtcoffNL, Whalen PJ, Kennedy W A, Rauch SL, Buckner RL, Strauss MM, Hyman SE, Rosen BR. Response and hab of the human amygdala during visual processing of facial expression. Neuron. 1996 Nov;I7(5):875-87.								
	*	Breiter, H.C., and Rosen, B.R. (1999). Functional magnetic re 877, 523-547.	esonance imaging of brain reward circuitry	in the human. N.Y. Acad. Sci.						
	*	Breiter, H.C., Rauch, S.L., Kwong, K.K., Baker, I.R., Weissko Stern, C.E., Belliveau, I. W., Baer, L., O'Sullivan, R.L., Savag resonance imaging of symptom provocation in obsessive-cor	ge, C.R., lenike, M.A., and Rosen, B.R. (199	6a). Functional magnetic						
	*	Brock, J.W., Ng, J.P., and Justice, J.B. Jr. (1990). Effect of cletermined by microdialysis perfusion with NSD1015. Neuron	hronic cocaine on dopamine synthesis in th sci. Lett. 117, 234-239.	e nucleus accumbens as						
	*	Buckner, R.L., Petersen SoB., Ojemann, J.C., Miezin, F.M, S explicit and implicit memory retrieval (aSks. I. Neurosci. 15, 1		tional anatomical studies of						
	*	Bushnell MC, Duncan GH, Hofuauer RK, Ha B, Chen JI, Cal' Proc Natl Acad Sci U S A. 1999 Jul6;96(14):7705-9.	Tier B. Pain perception: is there a role for p	rimary somatosensory cortex?						
	*	Cabanac, M. (1971). Physiological role of pleasure. Science	173(2), 1103-1107.	· · · · · · · · · · · · · · · · · · ·						
	*	Cabib S, Puglisi-Allegra S. Opposite responses ofmesolimbic J Neurosci. 1994 May;14(5 Pt 2):3333-40.	dopamine system to controllable and unco	ontrollable aversive experiences						
	*	Cadoni, C., Solinas, M., Chiara, G. (2000). Psychostimulant s J. Pharmacol. 388(1), 69-76.	sensitization: differential changes in accum	bal shell and core dopamine. Eu						
	*	Cador, M., Robbins, T.W., and Everitt, B.J. (1989). Involveme ventral striatum. J. Neurosci. 30, 77-86.	ent of the amygdala in stimulus-reward ass	ociations: interaction with the						
	*	Cahill, L., Haier, R.J., Fallon, J., Alkire, M.T., Tang, C., Keato elated with long-tenn, free recall of emotional infonnation. Pro	r, D., Wu, I., and McGaugh, J.L. (1996). An oceedings Nat. Acad. Sci. U.S.A. 93,8016-	nygdala activity at encoding con- 3021.						
		Date Examiner								

U.S. DETERMENT OF CUMPALPATENT AND TRADEMERK OFFICE
INFORMATION DISCLOSURE CITATION G 0 6

2004 Form PTO-1449 ATTY, DO APPLICATION NO. (Rev. 8-83) MGH-004AUS 09/729,665 APPLICANT (Use several sheets if necessing WOLOGY CENTER B3)

OTHER DOCUMENTS (including Author, Cale, Date, Pertinent Pages, Etc.) Hans C. Breiter et al. GROUP **December 4, 2000** 2862 CalTive P. The periaqueductal gray and defensive behavior: functional representation and neuronal organization. Behav Brain Res. 1993 Dec 20;58(1-2):27-47. Calder, A.J., Young, A.W., Rowland, D., PelTett, D.I., Hodges, J.R., and Etcoff, N.L. (1996). Facial emotion recognition after bilateral amygdala damage: differentially severe impainnent of fear. Cognitive Neuropsychology 13, 699-745. Carelli, R.M., Ijarnes, S.G., and Crumling, A.J. (Evidence that separate neural circuits in the nucleus accumbnes encode cocaine versus .natural" (water and food) reward. J. Neurosci. 20(11): 4255-4266...June 2000. Carr DB, Sesack SR. Projections from the rat prefrontal cot1ex to the ventral tegmental area: target specificity in the synaptic associations with mesoaccumbens and mesocortical neurons. J Neurosci. 2000 May 15;20(10): 3864-73. * Carrive P. The periaqueductal gray and defensive behavior: functional representation and neuronalorganization. Behav Brain Res. 1993 Dec 20:58(1-2):27-47. Carstens, E., Ste1zer, B., and Zilrunermann, M. (1988). Microinjections of glutamate or morphine at coincident midbrain sites have different effects on nociceptive dorsal horn neurons in the rat. Neurosci Lett. 95(1-3), 185-191. Casey KL, Minoshima S, Berger KL, Koeppe RA, Morrow TJ, Frey KA. Positron emission tomographic analysis of cerebral structures activated specifically by repetitive noxious heat stimuli. J Neurophysiol. 1994 Feb;71(2):802-7 Casey KL, Minoshima S, MolTOW TI, Koeppe RA. Comparison of human cerebral activation pattern during cutaneous warmth, heat pain, and deep cold pain. J Neurophysiol. 1996 Jul;76(1):571-81. Casey KL. Forebrain mechanisms of nociception and pain: analysis through imaging. Proc Natl Acad Sci U S A. 1999 Jul6;96(14):7668-74. Chance, W.T., Foli-Nelson, T., Nelson, J.L., and Fischer. J.E. (1987). Neurotransmitter alterations associated with feeding and satiety. Brain Research 416, 228-234. Chapman CR, Gavrin J. Suffering: the contributions of persistent pain. Lancet. 1999 Jun 26;353(917)):2233-7. Chiou, L.C., and Huang, L. Y. (1999). Mechanism underlying increased neuronal activity in the rat ventrolateral periaqueductal grey by a u-opioid. J. Physiol. (Land). 518 (Pt 2), 551-559. Chudler EH. Response properties of neurons in the caudate-putamen and globus pallidus to noxious and non-noxious thermal stimulation in anesthetized rats. Brain Res. 1998 Nov 23;8 t 2(1-2):283-8. Chudler, E.H., Sugiyama, K., Dong, W.K., Nociceptive responses in the neostriatum and globus pallidus of the anesthetized rat, Journal of Neurophysiology, Vol. 69, No. 6, June 1993, 1890-1903. * Church, R.M. (1984). Properties of the internal clock. In Timing and Time Perception. Gibbon, J., Allan, L. (eds.), New York: New York Academy of Sciences, 566-582. Clarke PB, Franklin KB. Infusions of 6-hydroxydopamine into the nucleus accumbens abolish the analgesic effect of amphetamine but not of morphine in the formalin test. Brain Res. 1992 May 15;580(1-2): 106-10. Cody, F.W. and Richardson, H.C> (1977) Trigeminal projections to the cerebellar cortes in the cat. Proc. IEEE Physiologicl Soc. 1977 41P. Coghill, R.C., Talbot, J.D., Evans, A.C., Meyer, E., Gjedde, A., Bushnell, M.C., and Duncan, G.H. (1994). Distributed processing of pain and vibration by the human brain. J. Neurosci. 14.4095-4108. * Coghill. R.C.. Sang. C.N.. Maisog. J.M., and ladarola, MJ. (1999). Pain intensity processing within the human brain; a bilateral, distributed

Cohen SR, Melzack R. The habenula and pain: repeated electrical stimulation produces prolonged analgesia but lesions have no effect

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in

mechanism. I. Neurophysiol. 82(4). 1934-1943.

Examiner

on fonnalin pain or morphine analgesia. Behav Brain Res. 1993 Apr 30;54(2): 171-8.

conformance and considered. Include copy of this form with next communication to applicant,

Date Considered:

*

330.

infants. Science 218, 1235-1236.

Psychology, Vol. 98, No. 2, 127-131.

14;9(13):3019-23.

Date

F	II C DE COMMENT OF COMMENT	TANK DOCUMENT	Page 5 of 1						
Form PTO-1449 (Rev. 8-83)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	MGH-004AUS	APPLICATION NO. 09/729,665						
AUG II 3 2004	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK PRICE INFORMATION DISCLOSURE CITATION AUG 0 6 (Use several sheets if necessary) (Use several sheets if necessary)	APPLICANT Hans C. Breiter et al.							
ALDIMARY OF	(Use several sheets if necessary) ECHNOLOGY CENTER ROZOGO OTHER DOCUMENTS (including Author, Title, Do	FILING DATE December 4, 2000	GROUP 2862						
	OTHER DOCUMENTS (including Author, Title, Da	ite, Pertinent Pages, Etc.)							
*	Cohen, M.S., Kosslyn, S.M., Breiter, H.C., DiGirolamo, GJ., Thompson Belliveau, J. W. (1996). Changes in cortical activity during mental rotat	, W .L., Anderson, A.K., Bookhei ion: A mapping srudy using func	mer, S. Y., Rosen, B.R., tional MRI. Brain 119, 89-100.						
*	Commons, K.G., van Bockstaele, E.I., and Pfaff, D. W. (1999). Frequent colocalization of mu opioid and NMDA-type glutamate receptors at postsynaptic sites in periaqueductal gray neurons. J. Comp. Neurol. 408(4),549-559.								
*	Corrigal, W.A and Vaccarino, F.J. (1988). Anatagonist treatment in the administration. Pharm. Bioch. and Behavioral. 30, 443-450.	the nucleus accumbens or periaqueductal grey affects heroin self-							
*	Craig AD, Chen K, Bandy D, Reiman EM. Thermosensory activation of	insular cortex. Nat Neurosci. 20	00 Feb;3(2): 184-90.						
*	Craig, A.D., Bushnell, M.C., Zhang, E.T., and Blomqvist, A. (1994). Ath Nature 372, 770-773.	nalamic nucleus specific for pain	and temperature sensation.						
*	Craig, A.D., Reiman, E.M., Evans, A., and Bushnell, M.C. (1996). Func	tional imaging of an illusion of pa	ain. Nature 384, 258-260.						
*	Critchley HD, Elliott R, Mathias CJ, Dolan RJ. Neural activity relating to responses: A functional magnetic resonance irnaging study. J Neurosc		of galvanic skin conductance						
*	D'Esposito, M., Detre, J.A., Alsop, D.C., Shin, R.K., Atlas, S., and Gros of working memory. Nature 378(6554), 279-281.	sman, M. (1995). The neural bas	sis of the central executive system						
*	Daghero, A.M., Bradley, E.L. Jr, and Kjssin, I. (1987). Midazolam antag 66(10), 944-947.	onizes the analgesic effect of m	orphine in rats. Anesth. Analg.						
*	Dale, A.M. (1999). Optimal experimental design for event-related fMRI.	Human Brain Mapp. 8(2-3), 109	I-114.						
*	Dalton JA, Feuerstein M, Carlson J, Roglunan K. Biobehavioral pain pr 57(1):95-107.	ofile: development and psychom	etric properties.Pain. 1994 Apr;						
*	Damasio, A.R., Individuals with sociopathic behavior caued by frontal d Brain Research, 41 (1990), 81-94.	lamage fail to respond autonomi	cally to social stimuli, Behavioural						

David, A., Blamire, A., & Breiter, H.C. (1994). Functional magnetic resonance imaging. Brit. J. Psychiatry 164, 2-7.

Emotional expression and brain physiology I. J. Personality and Social Psych. 58(2), 330-341.

Examiner

(movement disorder) patients. J Neurophysiol. 1996 Mar;75(3): 1026-37.

Davidson, R.J., & Sutton, S.K. (1995). Affective neuroscience: The emergence of a discipline. Current Opin. Neurobiology 5, 217 -224.

Davidson, R.J. (1998). Affective style and affective disorders: Perspectives from affective neuroscience. Cognition and Emotion 12, 307-

Davidson, R.J., and Fox, N.A. (1982). Asymmetrical brain activity discriminates between positive and negative affective stimuli in human

Davidson, R.J., and Fox, N.A. (1988). Frontal brain asymmetrical predicts infants' response to maternal separation. Journal of Abnormal

Davidson, R.J., Ekman, P., Saron, C.D., Senulis, J.A., and Friesen, W.V. (1990). Approach-withdrawal and cerebral asymmetry:

Davis KD, Kiss ZH, Tasker RR, Dostrovsky JO. Thalamic stimulation-evoked sensations in chronic pain patients and in nonpain

Davis KD, Kwan CL, Crawley AP, Mikulis DJ. Event-related fMRI of pain: entering a new era in imaging pain. Neuroreport. 1998 Sep

FORM PTU-1449

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMA POPEFICE

O P E

O P E

O N O 3 2004

O WARRENT OF COMMERCE
PATENT AND TRADEMA POPEFICE

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

O P E

ATTY. DOCKET NO.

MGH-004AUS

APPLICATION NO. **09/729,665**

APPLICANT

Hans C. Breiter et al.

FILING DATE

December 4, 2000

GROUP **2862**

				U.S.	PATENT DO	CUMENTS					
EXAMINER INITIAL		DC	OCUMENT NUI		DATE	NAME	CLASS	SUBCLASS	FILING DATE IF		
			OTHE	R DOCUMENTS	(including Autho	r, Title, Date, Pertinent l	Pages, Etc.)				
	*	Davis KD, Kv and tactile sti	wan CL, Crawle imuli. J Neurop	ey AP, Mikulis Dl. hysiol. 1998 Sep;	Functional MRI 80 (3): 1533-46	study of thalamic and c	cortical activation	s evoked by cuta	aneous heat, cold,		
 	*	Davis, K.D., I	Kiss, Z.H., Luo, tion. Nature. 39	, L., Tasker, R.R., 91(6665), 385-387	Lozano, A.M., a	and Dostrovsky, J.O. (1	998b). Phantom	sensations gene	rated by thalamic		
	*	Decavel, C.,	and Van den P	ol, A.N. (1990). (SABA: a domina	int neurotransmitter in t	the hypothalamus	s. J. Comp. Neu	rol. 302, 1019-1037		
	*	Derbyshire S 1998 pp. 127		Cerebral respons	es to a continua	l tonic pain stimulus me	easured using po	sitron emission	tomoraphy. Pain 76		
	*	Derbyshire St produces diffe	W, Jones AK, (erential pattern	Oyulai F, Clark S, is of central activi	Townsend D, F ly. Pain. 1997 D	irestone LL. Pain proce ec;73(3):431- 45.	essing during thro	ee levels of noxid	ous stimulation		
* Devinsky 0, Morrell MJ, Vogt BA. Contributions of anterior cingulate cortex to behaviour. Brain. 1995 Feb118 (Pt 1):279-306.											
	* DiChiara, G. and Imperato, A. (1988). Drugs abused by humans preferentially increase synaptic dopamine concentrations in the mesolimbic system of freely moving rats. Proceedings of the National Academy of Sciences 85, 5274-5278.										
 Dill. R.E and Costa. E. (1977). Behavioural dissociation of the enkephalinergic systems of nucleus accumbens and nucleuraphannacology 16(5).323-326. Drevets, W.C., Videen, T.O., Price, J.L., Preskom, S.H., Carmichael, T., & Raichle, M.E. (1992). A functional anatomical depression. J. Neurosci. 12, 3628-3641. 											
										,	* Edmjnster, W.B., Talvage, T.M., Ledden, P.I., and Weisskoff, R.M. (1999). Improved auditory cortex imaging using clustere acquisitions. Hum. Brain Map 7(2), 89- 97.
	*	Ekman, P., S	orenson, E.R.,	and Friesen, W .	V. (1969). Pan-	cultural elements in fac	cial displays of e	motion. Science	164, 86-88.		
	*	Etcoff, N.L. (1	984). Selective	attention to facia	I identity and fa	cial emotion. Neuropsy	rchologia 22(3), 2	281-295.			
	*	Everitt, B.J. (1 2.	1997). Craving	cocaine cues: coç	gnitive neurosci	ence meets drug addic	tion research. Tr	ends in Cognitiv	e Sciences 1(1), 1		
	*					01). The basolateral am erlying reward-related					
	*	Fields HL, He	inricher MM, M	lason P. Neurotra	nsmitters in noc	iceptive modulatory cir	cuits. Arll1u Rev	Neurosci. 1991	;14:219-45.		
	*	Fields HL, Ma 1995 Oct;74(4		n R. Dorsal horn p	rojection target	s of ON and OFF cells	in the rostral ven	tromedial medul	la. JNeurophysiol.		
* Fiez. J.A., Raife, E.A., Balota, D.A., Schwarz, J.P., Raichle, M.E., and Petersen, SoB. (1996). A positron emission the short-tenn maintenance of verbal information. J. Neurosci. 16(2),808-822.									nography study of		
	*			ell, R.B., and Dale Mapp. 8(4), 272-2		High-resolution intersul	bject averaging a	and a coordinate	system for the		
	*	Franklin, KB. A 59 (4):993-100		Abuse Potential:	an accidental a	ssociation or a commo	n substrate? Pha	armacol Biochen	n Behav. 1998 Apr		
_	*	Franklin, KB. A	Analgesia and	the neural substra	ite of reward. N	eurosci Biobehav Rev.	1989 Sununer-f	Fall; 13(2-3): 149	-54		
		Date			Examiner						

AUG 0 3 2004 N (Use several.	Form PTO-1449	U.S
AUG 0 3 2004 N (Use several.	(Rev. 8-83)	PA
MUCH	AUG 0 3 2004 %	INFORMATION DI (Use several s

ATTY. DOCKET NO. MGH-004AUS

APPLICATION NO. 09/729,665

APPLICANT

Hans C. Breiter et al.

FILING DATE **December 4, 2000**

GROUP 2862

		U.	S. PATENT DOC	CUMENTS			
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE*
	•	OTHER DOCUMENT	ΓS (including Author,	Title, Date, Pertinent Po	iges, Etc.)		
	*	Friston KJ, Holmes AP, Poline JB, Grasby	PJ, Williams SC, Fr	ackowiak RS, Turner R	R. Analysis of fM	RI time-series re	visited.

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE*							
	•	OTHER DOCUMENTS (ncluding Autho	r, Title, Date, Pertinent Page:	s, Etc.)									
	*	Friston KJ, Holmes AP, Poline JB, Grasby PJ, Neuroimage. 1995 Mar;2(1):45-53.	Williams SC, I	Frackowiak RS, Turner R. A	nalysis of fM	RI time-series re	evisited.							
	*	Friston, K.J., Holmes, A.P., Worskey, K.I. (199	9). How many	subjects constitute a study?	Neurolmage	e 10, 1-5.								
	*	Gaffan, D., and Harrison, S. (Aug.1987). Amyo monkeys. J. Neurosci. 7, 2285-2292.	gdalectomy and	disconnection in visual lea	arning for aud	litory secondary	reinforcement by							
	*		Gaffan, E.A., Gaffan, D., and Harrison, S. (1988). Disconnection of the amygdala from visual association cortex impairs visual reward-association learning in monkeys. J. Neurosci. 8, 3144-3150.											
	*	Gallagher, M., & Chiba, A.A. (1996). The amygdala and emotion. Current Opin. Neurobiology 6, 221-227.												
	*	Gallagher, M., & Holland, PC (Dec. 1994). The amygdala complex: multiple roles in associative learning an attention. Proc. Natl. Acad. Sci. Vol. 91, pp 11771-11776.												
	*	Gao DM, Jeaugey L, Pollak P, Benabid AL. Intensity-dependent nociceptive responses from presumed dopaminergic neurons of the substantia nigra, pars compacta in the rat and their modification by lateral habenula inputs. Brain Res. 1990 Oct 8;529(1-2):315-9.												
	*	Gear, R.W., Aley, K.O., and Levine, J.D. (1999). Pain-induced analgesia mediated by mesolimbic reward circuits. Neurosci. 19(16), 7175-7181.												
	*	Gebhart, G.F., Sandkuhler, J., Thalhammer, J.a., and Zimmermann M. (1984). Inhibition in spinal cord of nociceptive information by electrical stimulation and morphine microinjection at identical sites in midbrain of the cat. J Neurophysiol. 51(1), 75-89.												
	*	George, M.S., Ketter, T.A., Parekh, P.I., Horow happiness in healthy women. Amer. J. Psychia			995). Brain a	ctivity during tra	nsient sadness and							
	*	Gibbon, I., R.M. Church, S. Fairhurst, and Kac Rev. 95, 102-114.	elnik, A. (1988)	. Scalar expectancy theory	and choice b	oetween delayed	rewards. Psychol.							
	*	Glickman SE, Schiff BB. A biological theory of	reinforcement.	Psychol Rev. 1967 Mar;74	(2):81-109.									
	*	Golay X, Kollias S, Stoll G, Meier D, Valavanis Reson Med. 1998 Aug;40(2):249-60.	A, Boesiger P	A new correlation-based for	uzzy logic clu	stering algorithr	n for fMRI. Magn							
	*	Gollub, R.L., Breiter, H.C., Kantor, H., Kenned Foley, M., Hyman, S.E., Rosen, B., and Weiss regional activation in functional magnetic resor	koff, R. (1998).	Cocaine decreases cortica	al cerebral blo	ood flow but doe	s not obscure							
	*	Gracely RH, Kwilosz DM. The Descriptor Differ Dec;35(3):279-88.	rential Scale: a	pplying psychophysical prin	nciples to clin	ical pain assess	ment. Pain. 1988							
	*	Guimaraes, A.R., Melcher, J.R., Talavage, T.M (1998). Imaging subcortical auditory activity in			liang, N.Y., F	ullerton, B.C., a	nd Weisskoff, R.M.							
	* Greden, J.F., Genero, N., Price, L., Feinberg, M., Levine, S., "Facial Electromyography in Depression, Arch. Gen. Psychiatry, Vo. March 1986, pp 269-274.													
	*	Gur, R.C., Erwin, R.J., Gur, R.E., Zwil, A.S., He depression, Psychiatry research, 42, 241-251,	eimberg, C., Kr 1992	aemer, H.C., Facial emotio	n discriminati	ion: II. Behaviora	al findings in							
	*	Gutstein, H.B., Mansour, A., Watson, Akil, H., a rostral ventromedial medulla. Neuroreport. 9(8)		. (June 1998). Mu and kap	pa opioid rec	eptors in periaq	ueductal gray and							
		Date	Examiner											

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADED TRADED TO THE PATENT AND (Rev. 8 information disclosure citat**AUG 0 6** 2004 (Use several sheets if necessary) HNOLOGY CENTER R3700

Date

ATTY, DOCKET NO. MGH-004AUS

APPLICATION NO. 09/729,665

APPLICANT

Hans C. Breiter et al.

FILING DATE

GROUP 2862

December 4 2000

	AUE			.07.00	December	4, 2000	2862			
	•	U.S. 1	PATENT DO	CUME	NTS					
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	Tid D	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE*		
	T *	OTHER DOCUMENTS (
·	ļ.,	Gysling, K., Wang, R.Y. (1983). Morphine-ind	uced activation	of A10 do	pamine neurons i	n the rat. Bra	in Res. 277(1),	119-27.		
	*	Haber SN, Fudge JL. The primate substantia	nigra and VT A	: integrativ	e circuitry and fur	nction. Crit R	ev Neurobiol. 19	997;11(4):323-42.		
	*	Hakan, R.L., and Henriksen, (Oct. 1989). Opia dopamine mechanisms. Journal of Neurosci. 9			accumbens neur	onal electrop	hysiology: dopa	mine and non-		
	*	Hakan, R.L., and Henriksen, S.I. (1987). Syst neurons in vivo. Neuroscience Lett. 83, 307-3	ematic opiate a	dministrat	ion has heteroger	neous effects	on activity reco	orded from nucleus		
	*	Hamann, S.B., Stefanacci, L., Squire, L.R., Ad Nature 379, 497.	lolphs, R., Tran	el, D., Dar	nasio, H., & Dam	asio. A. (199	6). Recognizing	facial emotion.		
	*	Hatfield, T., Ran, IS., Conley, M., Gallagher, amygdala interfere with pavlovian second-order								
•	*	Haxby, J.V., Horwitz, B., Ungerleider, L.G., Ma extratriate cortex: a PET-rCBF study of selection	axby, J.V., Horwitz, B., Ungerleider, L.G., Maisog, J.M., Pietrini, P., and Grady, C.L. (Nov. 1994). The functional organization of human stratriate cortex: a PET-rCBF study of selective attention to faces and locations. J. Neurosci. 14 (11), 6336-6353.							
	*	Heffner, T., Hartman, J., and Seidan, L. (1980	leffner, T., Hartman, J., and Seidan, L. (1980). Feeding increases dopamine metabolism in the rat brain. Science 208, 1168-1170.							
	*	Heilman, K.M., Bowers, D., Speedie,L., & Cosi Neurobiology 33(2), 241.	Heilman, K.M., Bowers, D., Speedie,L., & Coslett, H.B. (April 1983). The comprehension of emotional and nonemotional prosody.							
	*	Heimar, L., Harlan, R.E., Alheid, G.F., Garcia, anatomical correlations in neuropsychiatric dis	M.M., and DeC orders. Neuros	Imos J. (1 cience 76	997). Substantia (4),957-1006.	innominata:	a notion which i	mpedes clinical-		
	*	Heimer, L., Alheid, G.F., de Olmos, J.S., Groen beyond the core-shell dichotomy. J. Neuropsyd	newegen, H.J., chiatry Clin. Ne	Haber, S.I urosci. 9(3	N., Harlan, R.E., 2 i), 354-81.	Zahm, D.S. (Summer1997).	The accumbens:		
	*	Heinricher MM, Cheng ZF, Fields HL. Evidence 1987 Jan;7(1):271-8.	e for two classe	es of nocic	eptive modulating	neurons in	the periaqueduc	tal gray. J Neurosci.		
	*	Henriques, J.B., & Davidson, R.J. (1991). Left	frontal hypoact	ivation in c	depression. J. Abi	norm. Psych.	100(4), 535-54	5.		
, ,,,	*	Henriques, J.B., & Davidson, R.J. (1990). Regi control subjects. J. Abnorm. Psych. 99(1), 22-3		trical asyn	nmetries discrimir	nate between	previously dep	ressed and healthy		
	*	Hernandez, L., and Hoebel, B. (1988). Food re measured by microdialysis. Life Sci. 42, 1705-		ine increa	se extracellular de	opamine in th	ne nucleus accu	mbens as		
	*	Hollerman, J.R., and Schultz, W. (August 1998 Nat Neurosci. 1(4), 304-309.). Dopamine n	eurons rep	ort an error in the	temporal pr	rediction of rewa	rd during learning.		
	*	Honey CR, Stoessl AJ, Tsui JK, Schulzer M, C 91 (2): 198-201.	alne DB. Unilat	eral pallid	otomy for reduction	on of parkins	onian pain. J Ne	eurosurg. 1999 Aug;		
	*	Hutchison WD, Davis KD, Lozano AM, Tasker 1999 May;2(5):403-5.	RR, Dostrovsky	y JO. Pain	-related neurons	in the humar	n cingulate cone	x. Nat Neurosci.		
	*	ladarola MI, Berman KF, Zeffiro TA, Byas-Smit pain and allodynia assessed with PET. Brain. 1				Neural activa	tion during acut	e capsaicin-evoked		
	*	Ingvar M. Pain and functional imaging. Philos T	rans R Soc Lo	nd B Bioi S	Sci. 1999 Jul 29;3	54: 1347-58				

Examiner

U.S. DELECTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE Form PTO-1449 CINFORMATION DISCLOSURE CITATION ECEIVED (Use several sheets if necessary)

ATTY. DO NO. MGH-004AUS

APPLICATION NO. 09/729,665

APPLICANT

Hans C. Breiter et al.

THE TRADE	MARKON	TECHNOLO	OGY CENTER)4 B270-	FILING DATE December	4, 2000	GROUP 2862				
		U.S. F	PATENT DO	CÚME	NTS						
XAMINER INITIAL		DOCUMENT NUMBER	DATE		NAME	CLASS	SUBCLASS	FILING DATE I APPROPRIATE			
	<u>.</u>	OTHER DOCUMENTS (i									
	*	Irwin, W., Davidson, R.J., Lowe, M, Mock, B.J. echo-planar functional magnetic resonanace is	., Sorenson, J./ maging. Neuro	A., & Tursk Report 7(1	i, P.A. (July 1996 1), 1765-1769.	S). Human am	ygdala activatio	n detected with			
	*	Iversen, s. D., and Mishkin, M. (1970). Preserv Exp. Brain Res. 11, 376-386.	vative interferer	nce in mon	keys following se	elective lesion	s of the inferior	prefrontal convexi			
	*	Jaeger, J., Borod, J.C., & Peselow, E. (1986) Facial expression of positive and negative emotions in patients with unipolar depression. J. Affective Dis. 11,43-50.									
	*	Jensen TS. Opioids in the brain: supraspinal mechanisms in pain control. Acta Anaesthesiol Scand. 1997 Jan;41(1 Pt 2): 123-32.									
·		Johnson, S. W., and North, R.A. (Feb. 1992). Opioids excite dopamine neurons by hyperalarization of local interneurans. J. Neurosci. 12(2),483-488.									
	*	Jones AK, Brown WD, Friston KJ, Qi L y, Frackowiak RS. Cortical and subcortical localization of response to pain in man using positron emission tomography. Proc R Soc Lond B Bioi Sci. 1991, Apr 22;244(1309):39-44.									
	- 1	Jones, A.K., Qi, L. Y., Fujirawa, T., Luthra, S.K., Ashbumer, I., Bloomfield, P., Cunningham, V. J., Itoh, M., Fukuda, H., and Jones, T. (1991 a or b). In vivo distribution of opioid receptors in man in relation to the cortical projections of the medial and lateral pain systems measured with positron emission tomography. Neurosci. Lett. 126(1), 25-28									
	* .										
	*										
	*	Kalivas PW, Nakamura M. Neural systems for	behavioral acti	vation and	reward. Current	Opin Neurob	iol. 1999 Apr 9(2): 223- 7.			
	* 4	Kalyuzhny AE, Arvidsson U, Wu W, Wessendo antinociceptive circuits: studies using immunoc	cytochemistry a	nd retrogra	ade tract-tracing.	J Neurosci.	16(20), 6490-50	3.			
	*	Kang W, Wilson SP, Wilson MA. Changes in noverexpression in rat amygdala are naloxone-r	eversible and t	ransient. A	nn NY Acad Sci.	. 1999 Jun 29	;877:751-5.				
	* 1	Kanwisher, N., McDermott, 1., & Chun, M.M. (J face perception. 1. Neurosci. 17 (11), 4302-431	11.					•			
	* f	Kapur, N., Friston, K.]., Young, A., Frith, C.D., 8 for faces: A PET study. Cortex 31, 99-108.									
	* r	Kern MK, Birn RM, Jaradeh S, Jesmanowicz A, response to esophageal mucosal acid exposure	e and distentio	n. Gastroe	nterology. 1998	Dec;115(6):1	353-62.	_			
	* v	Killcross, S., Robbins, T.W., and Everitt, B.J. (J within amygdala. Nature 388, 377-380.									
	* f	Kiyatkin, E., and Gratton, A. (1994). Electroche for food Brain Res. 652, 225-234.									
	* 0	Konishi S, Nakajima K, Uchida I, Kameyama M during cognitive set shifting. Nat Neurosci. 1998	8 May; 1(1):80-	4.	•		ation of inferior	prefrontal cortex			
	*	Coob G.F. Sanna PP, Bloom FE. Neuroscience					-lane 040 717	700			
	*	Koob, G.F., and Bloom, F.E. (Nov. 1988). Cellul	_								
	* ((osslyn, S:M., Pascual-Leone, A., Felician. 0., (April 1999). The role of area 17 in visual image	ery: convergent	evidence	from PET and rT	MS. Science	284(5411).167	-170.			
	* [Kreek, M.J., and Koob, G.F. (1998). Drug deper Dependence 51,23-47.				,					
		Krout KE, Jansen AS, Loewy AD. Periaqueducto 10;401(4):437-54	ai gray matter (orojection .	to the parabrach	iai nucleus in	rat. J Comp Ne	uroi. 1998 Nov			
		Date	Examiner								

							Page 10 of 15			
Form PTO-14 (Rev. 8-83)		U.S. DEPARTMENT OF COM PATENT AND TRADEMARK		ATTY. DOCKE MGH-004		APPLICAT 09/729,				
OIP	E	NFORMATION DISCLOSURE CITATION	RECE	APPLICANT CHANS C. Breiter et al. POO FILING DATE December 4, 2000 APPLICANT GROUP 2862						
(AUG O	3 2004	(Use several sheets if necessary)	AUG O C	Hans C. Breiter et al.						
PHENT'S TR	- 400	TECI	YNOLOGY CENTER	December	4, 2000	GROUP 2862				
C& TR	ADEM		- GIV CENTE	7 R22						
		U.S. PA	TENT DOCUM	E N979 0	,	·				
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE*			
		OTHER DOCUMENTS (incl								
	*	Kwong, K.K., Belliveau, J. W ,. Chester. D.A., Gol Turner, R., Cheng, H.M Brady, T J ., and Rosen, sensory stimulation. Proc. Natl. Acad. Sci. 89, (Ju	, B.R. Dynamic mag ine 1992) 5675-567	netic resonance im 9.	naging of human	brain activity	during primary			
	*	Lai SH, Fang M. A novel local PCA-based method	d for detecting activ	ation signals in fMF	RI. Magn Reson	Imaging. 199	9 Jul;17(6):827-36.			
	*	Lane, R.D., Reiman. E.M Ahern, G.L Schwartz, and disgust. Amer. J. Psychiatry 154, 926-933.					appiness. sadness,			
	*	LeDoux, J.E. (1993). Emotional memory: In search	th of systems and sy	napses. Ann. N. Y	. Acad. Sci. 702,	, 149-157.				
	*	Lee RS, Koob GF, Henriksen SJ. Electrophysiolo- behavior in the awake, unrestrained rat. Brain Re	s. 1998 July 20;799	(2):317-22.						
	*	Lenz, F.A., Gracely, R.H., Romanoski, A.1., Hope somatosensory thalamus can reproduce both the 910-913.	affective and sense	ry dimensions of p	reviously experience	enced pain. N	lature Med. 1 (9),			
	*	Leonard, C.M., Rolls, E.T., Wilson, F.A., & Baylis, G.C. (1985). Neurons in the amygdala of the monkey with responses selective for faces. Behav. Brain Res. 15, 159-176.								
	*	London, E.D., Cascella, N.G., Wong, D.F., Phillip: H.N. (June 1990). Cocaine-induced reduction of c	lucose utilization in	human brain. Arch	n. Gen. Psychiat	ry 47, 567-574	4.			
	*	Lynd-Balta, B., and Haber, S.N. (1994). The organization of midbrain projections to the ventral striatium in the primate. Neuroscience 59, (3) 625-640.								
	*	Maldonado, R., Saiardi, A., Valverde, O., Samad, T.A., Roques B.P., Borrelli, E. (Aug. 1997) Absence of opiate rewarding effects in mice lacking dopamine D2 receptors. Nature 388 (6642), 586-589.								
	*	Manning BH, Mayer DJ. The central nucleus of the amygdala contributes to the production of morphine antinociception in the rat tail-flick test. J Neurosci. 1995 Dec;15(12):8199-213.								
	*	Manning BH. A lateralized deficit in morphine anti 15;18 (22):9453-70.								
	*	Mansour, A., Khachaturian, H., Lewis, M.E., Akil, kappa opioid receptors in the forebrain and midbr	ain. J Neurosci. 7(8), 2445-2464.						
	*	Martin G., Nie Z, Siggins, G.R. (1997). μ-opioid re neurons. J Neurosci. 17, 11-22.								
	*	Martin WJ, Coffin PO, Attias E, Balinsky M, Tsou by intracerebral microinjections. Brain Res. 1999	Mar 20;822(1- 2):2	37-42.						
	*	Martinot, J.L., Hardy, P., Feline, A., Huret. J.D., M hypometabolism in the depressed state: A confirm	nation. Amer. J. Psy	chiatry 147, 1313-	1317.					
	*	Mathews, R.T., and German, D.C. (1984). Electr by morphine. Neuroscience 11 (3), 617-625.								
	*	Matthes, H. W., Maldonado, R., Simonin, F., Valv Hanoune, J., Roques, B.P., and Kieffer BL. (1996 lacking the µ-opioid-receptor gene. Nature.383(66). Loss of morphine 503), 819-823.	-induced analgesia	i, reward effect a	and withdrawa	al symptoms in mice			
	*	Maximilian, V.A., Prohovnik, I., and Risberg, I. (19 Stroke II (4), 342-347.	980). Cerebral hemo							
	*	McCarthy, G., Blamire, A.M., Puce, A., Nobre, A., magnetic resonance imaging of human prefrontal 8690-8694.	cortex activation de	iring a spatial work	ing memory tasl	k. Proc Natl A	cad Sci USA 91,			
	*	McCullough, L., Cousins, M., and Salamone, J. (1 reinforcement operant schedule: a neurochemica.	and behavioral stu	idy. Pharmacol. Bio	ochem. Behav. 4	46, 581-586 .				
	*	McFarland, D.J., and Sibly, R.M. (1975). The beha	avioral final commo	n path. Philos. Trai	ns. R. Soc. Lond	d. B. Biol. Sci.				
	*	McLellan, A.T., Luborsky, L., and Woody, G.E. (19 addiction severity index. Journal of Nervous and Market Property and Market	Mental Disorders 16	8, 27-33.						
	*	Mellers, B.A., Schwartz, A., Ho, K., and Ritov, I. (1 Psychological Sciences 8(6), 423-429.	_							
	*	Mesulam, MM. (1990). Large-scale neurocogniti Neurology 28, 597-613.								
	*	Michel, M.E., et al., Binding of a New Opiate Antag 7(4): 175-177	gonist, Nalmefene,	to Rat Brain Memb	ranes, Meth and	d Find Exptl C	lin Pharmacol 1985;			

Examiner

Date

Forni PTÖ-1449 (Rev. 8-83) AUG 0 3 2004 8 PERT TRADENAS

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTY, DOCKET NO. MGH-004AUS

APPLICATION NO. 09/729,665

APPLICANT
Hans C. Breiter et al.

FILING DATE
December 4, 2000

CIPE			REO.					, 		
•	8	INFORMATION DISCLOSURE CITATION	AUG O	ENE	APPLICANT Hans C. Breiter et al. FILING DATE December 4, 2000 GROUP 2862					
AUG 0 3 2004 S		(Use several sheets if necessary)	VOLOGY CEN	2004 Ter .	FILING DATE December	4, 2000	GROUP 2862	GROUP 2862		
THAT CO			ATENT DO	75,						
XAMINER			-					FILING DATE I		
INITIAL		DOCUMENT NUMBER	DATE		NAME	CLASS	SUBCLASS	APPROPRIATE		
		OTHER DOCUMENTS (in								
		Mirenowicz, J., and Schultz, W. (1994). Importa Neurophysiol. 72(2), 1024-1027.	ance of unpred	dictability	or reward respon	ses in primat	e dopamine neu	rons. J.		
	*	Mirenowicz, J., and Schultz, W. (1996). Prefere	ential activation	n of midb	ain dopamine ne	urons by app	etitive rather tha	n aversive stimuli.		
	*	Nature 379, 449-51. Mitchell JM, Basbaum AI, Fields HL. A locus ar	nd mechanism	of action	for associative m	orphine toler	ance. Nat Neuro	sci. 2000		
	*	Jan;3(1):47-53. Morgan MJ, Franklin KB. 6-Hydroxydopamine l	lesions of the v	ventral ted	mentum abolish	D-amphetam	ine and morphin	e analgesia in the		
		formalin test but not in the tail flick 'est. Brain R Morris, J.S., Frith, C.D., Perrett, D.I., Rowland,	Res. 1990 Jun 1	11;519(1-	2):144-9.					
		human amyodala to fearful and happy facial ex	pression. Natu	ure 383, 8	12-815.					
	*	Mouton LJ, VanderHorst VG, Holstege G. Largi Neurosci Lett. 1997 Nov 28;238(1-2): 1-4.	e segmental d	ifference	in the spinal pro	jections to the	e periaqueducta	gray in the cat.		
	*	Ngan SC, Hu X. Analysis of functional magnetic	c resonance in	naging da	ta using self-orga	anizing mapp	ing with spatial o	connectivity.Magn		
	*	Reson Med. 1999 May;41(5):939-46. Nowycky, M.C., Waiters, J.R., and Roth, R.H. (1978) Donam	inergic n	eurans: effect of a	cute and chr	onic morphine a	dministration on		
		single cell activity and transmitter metabolism.	J. Neural Tran	s. 42, 99-	116.					
		O'Donnell P, Grace AA. Dopaminergic reductio Neuropsychopharmacology. 1996 Jul;15(1):87-	-97							
	*	Ogawa, S., Lee, T., Nayak, A., and Glynn, P. (1	1990), Oxygena	ation-sen	sitive contrast in r	nagnetic reso	onance image of	rodent brain at hi		
	¥	magnetic fields. Magn Reson Med. 14, 68-78. Ogawa, S., Tank, D. W., Menon, R., Ellermann	. J.M., Kim, S.	G, Merk	e, H., and Ugurbi	il., K. (1992).	. Intrinsic signal o	changes		
		accompanying sensory stimulation: functional by Oldfield, R.C. (1971). The assessment and ana	orain mapping	using MF	II. Proc. Natl. Aca	d. Sci. USA 8	89, 5 <u>951-5955.</u>			
		Orzi, F., Passarelli, F., La Riccia, M., Di Grezia,								
		of the rat nucleus accumbens. Eur. J. Pharmac	юl. 302(1-3), 4	9-51.						
		Pardo, J. V., Pardo, P.J., & Raichle, M.E. (1993						·		
		Paulesu, E., Frith, C.D., and Frackowiak, R.S.J 342-345.						emory. Nature 36		
		Pay S, Barasi S. A study of the connections of								
	1	Peckys, D., and Landwehrmeyer, a.B. (1999). E P in situ hybridization study. Neuroscience 88(4	4), 1093-1135.							
	*	Peoples, L.L., and West, M.O. (1996). Phasic fi intravenous cocaine self-administration. J. Neu	iring of single	neurons i	n the rat nucleus	accumbens of	correlated with th	e timing of		
		Pettit H.O. Ettenberg, A., Bloom, F.E., and Ko	ob. G.F. (1984	Destru	ction of dopamin	e in the nucle	eus accumbens s	selectively		
	*	attenuates cocaine but not heroin self-administ Petrides, M., Alivisatos, B., Meyer, E., and Evan	ration in rats. I	Psychoph). Function	armacology (Berl	in) 84(2), 16 he human fro	7 -173. ontal cortex durin	ng the performanc		
		of verbal working memory tasks, Proc. Natl. Ac-	ad. Sci. USA 9	90, 878-8	32.					
		Pfaffmann, C., Norgren, R., and Grill, H.J. (197								
		Phillips, A., Atkinson, L., Blackburn, J., and Blal elicited by a conditional stimulus for food: an ele	ectrochemical	study. Ca	ın. J. Physiol. Pha	amacol. 71,	387-393.			
	<u>. </u>	Piepponen, T.P., Honkanen, A., Kivastik, T., Zh receptors in opioid-induced acceleration of stria	arkovsky, A., '	Turtia, A.	Mikkola, J.A., At	ntee, L. (1999	3). Involvement o	ıf opioid μ1- av. 63(2), 245-52.		
	*	Porrino, L.J., Crane, A.M., and Goldman-Rakic, monkeys. J. Comp. Neurol. 198, 121-136.	, P.S. (1981). I	Direct and	I indirect pathway	s from the a	mygdala to the fr	ontal lobe in rhes		
	*	Price DD, Bush FM, Long S, Harkins SW. A con numerical rating scales. Pain. 1994 Feb;56(2):2		ain meas	rement characte	ristics of med	chanical visual a	nalogue and simp		
	*	Puce, A., Allison, T., Asgari, M., Gore, J.C., & N and textures: A functional magnetic resonance	AcCarthy, G. (1	1996). Dit	ferential sensitivit	ty of human v	visual cortex to fa	aces, letterstrings,		
	*	Puce, A., Allison, T., Gore, J.C., & McCarthy, G	i. (1995). Face	-sensitive	regions in huma	n extrastriate	cortex studied t	oy functional MRI;		
	*	Journal of Neurophysiology, Vol. 74 (3), 1192-1 Radhakishun, F., van Rec, I., and Westerink, B food-deprived rats as assessed with on-line bra	. (1988). Sche	eduled ea	ing increases do tt 85, 351-356.	pamine relea	se in the nucleu	s accumbens of		
		•	Examiner		, , , , , , , , , , , , , , , , , , , ,					
		Date	LAMITME					· · · · · · · · · · · · · · · · · · ·		

AUS 0 3 2004 N

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO. MGH-004AUS

APPLICATION NO. **09/729,665**

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

Hans C. Breiter et al.

FILING DATE

APPLICANT

GROUP

December 4, 2000

2862

EXAMINER INITIAL		DOCUMENT NUMBER DATE NAME CLASS SUBCLASS APPROPRIAT										
INITIAL		OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)										
· · · · ·	*	The state of the s										
		somatosensory cortex. Science 277 (5328), 968-971.										
	*	Rasia-Filho AA, Londero RG, Achaval M. Functional activities of the amygdala: an overview. J Psychiatry Neurosci. 2000 Jan;25(I): 1 23.										
	*	Reese, T.G., Davis, T.L., and Weisskoff, R.M. (1995). Automated shimming at 1.5T using echo planar image frequency maps. J. Ma Reson. Imaging 5, 739-745.										
	*	Reiman, E.M., Lane, R.D., Ahern, G.L., Schwartz, G.E., Davidson, R.J., Friston, K.J., Yun, LS., & Chen, K. (1997). Neuroanatomical correlates of externally and internally generated human emotion. Amer. J. Psychiatry 154, 918-925.										
	*	Richardson, N., and Gratton, A. (1996). Behavior-relevant changes in nucleus accumbens dopamine transmission elicited by food reinforcement: an electrochemical study in rat. J. Neurosci. 16, 8160-8169.										
	*	Robbins, T.W., and Everitt, BJ. (1996). Neurobehavioral mechanisms of reward and motivation. Currnt Opinion in Neurobiology 6, 2 236.										
	*	Roberts, D.C., Koob, G.F., Klonoff, P., and Fibiger, H.C. (1980). Extinction and recovery of cocaine self-administration following 6-hydroxydopamine lesions of the nucleus accumbens. Pharmacol. Biochem. Behav. 12(5), 781-787.										
	*	Robinson, T.E., & K.C. BelTidge. 1993. The neural basis of drug craving; an incentive- sensitization theory of addiction. Brain Research Rev. 18, 247-291.										
	*	Rogers RD, Owen AM, Middleton HC, Williams EJ, Pickard JO, Sahakian BJ, Robbins TW. Choosing between small, likely rewards at large, unlikely rewards activates inferior and orbital prefrontal cortex. J Neurosci. 1999 Oct 15; 19(20):9029-38.										
	*	Rompre, PP., and Shizgal, P. (1986). Electrophysiological characteristics of neurons in forebrain regions implicated in self-stimulation of the medial forebrain bundle in the rat. Brain Res. 364, 338-349.										
	*	Ross, E.D., & Mesulam, M.M. (1979). Dominant language functions of the right hemisphere?; Prosody and emotional gesturing. Arch.Neurology 36, 144-148.										
	*	Ryding, E., Eriksson, M.B.E., Rosen, I., and Ingvar, D.H. (1985). Regional cerebral blood flow (rCBF) in man during perception of radi warmth and heat pain. Pain 22, 353-362.										
•	*	Saade NE, Atweh SF, Bahuth NB, Jabbur SJ. Augmentation of nociceptive reflexes and chronic deafferentation pain by chemical lesion of either dopaminergic terminals or midbrain dopaminergic neurons. Brain Res. 1997 Mar 14;751(1):1-12.										
	*	Sackeim, H.A., Prohovnik, I., Moeller, J.R., Brown, R.P., Apter, S., Prudic, J., Devanand, D.P., & Mukherjee, S. (1990). Regional cerel blood flow in mood disorders. Arch. Gen. Psychiatry 47, 60-70.										
	*	Salamone, I.D., Cousins, M.S., and Snyder, B.I. (1997). Behavioral functions of nucleus accumbens dopamine empirical and conceptual problems with the anhedonia hypothesis. Neurosci. Biobehav. Rev. 21:341-59.										
	*	Salamone, J., Cousins, M., McCullough, L., Carriero, D., and Berkowitz, R. (1994). Nucleus accumbens dopamine release increases during instrumental lever pressiing for food but not free food consumption. Pharmacol. Biochem. Behav. 49, 25-31.										
	*	Sandyk R, Bamford CR, Iacono RP. Pain and sensory symptoms in Parkinson's disease. Int J Neurosci. 1988 Mar;39(1-2): 15-25.										
	*	Schlaepfer, T.E., Strain, E.C., Greenberg, B.D., Preston, K.L., Lancaster, E., Bigelow, G.E., Barta, P.E., and Pearlson, G.D. (1998). Site of opioid action in the human brain: mu and kappa agonists' subjective and cerebral blood flow effects. Am. J. Psychiatry 155(4), 470-473.										
	*	Schultz, W., Dayan, P., and Montague, P.R. (1997). A neural substrate of prediction and reward. Science 275, 1593-1599.										
	*	Schultz et al. (1995). In Models of Information Processing in the Basal Ganglia, Houk, J.C., Davis, J.L., and Beiser, D.G. (eds.) rvnT Press, Cambridge, MA, 233-248.										
	*	Schultz, W., Apicella, P., and Ljungborg, T. (1993). Responsors of monkey dopamine neurons to reward and conditioned stimuli durin successive steps of learning a delayed response task. I. Neuroscience 13(3), 900-913.										
	*	Schultz, W., and Romo, R. (1990). Dopamine neurons of the monkey midbrain: contingencies of responses to stimuli eliciting immediately behaviord; reactions, J. Neurophysiol. 63, 607-624.										
	*	Schultz, W. (1986). Responses of midbrain dopamine neurons to behavioral trigger stimuli in the monkey. Journal of Neurophysiolog 56, 1439-1461										
	*	Schultz, W. (1997). Dopamine neurons and their role in reward mechanisms. Curr .Opin. Neurobiol. 7, 191-197.										
	*	Schultz, W., Apicella, P., Scamati, E., and Ljungberg, T. (1992). Neuronal activity in monkey ventral striatum related (to the expectation reward. I. Neurosci. 12, 4595-4610.										
	*	Seidman, L.J., Breiter, H.C., Goodman, J.M., Goldstein, J.M., Woodruff, P. W.R., O'Craven, K., Savoy, R., Tsuang, M.T., & Rosen, B. (1998). A functional magnetic resonance imaging study of auditory vigilance with low and high infonnation .processing demands. Neuropsychology 12, 505-518.										
	*	Sell LA, Moms J, Beam I, Frackowiak RS, Friston KJ, Dolan RI. Activation of reward circuitry in human opiate addicts. Eur J Neurosci. 1999 Mar; 11(3): 1042-8.										
		Date Examiner										

Forin PTO-1449 (Rev. 8-83) AUG 0 3 2004 RADEMAR

ATTY. DOCK NO. MGH-004AUS

APPLICATION NO. 09/729,665

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARKS OF ICE

INFORMATION DISCLOSURE CITATION AUG 0 6

(Use several sheets if necessary)

CENTER R3700

APPLICANT

Hans C. Breiter et al.

FILING DATE **December 4, 2000**

GROUP 2862

		U.S. PATENT DOCUMENTS											
EXAMINER INITIAL			G DATE IF OPRIATE*										
	·	OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)											
	*	Sergent, J., Ohta, S., & MacDonald, B. (1992). Functional neuroanatomy of face and object processing. Brain 115, 15-36.											
	*	Serratrice O, Michel B. Pain in Parkinson's disease patients. Rev Rhum Engl Ed. 1999 Jun;66(6):331-8.											
	*	Shi, C., Davis, M. Pain Pathways involved in fear conditioning measured with fear-potentiated startle: lesion studies, The Journal of Neuroscience, Jan. 1, 1999, 19(1): 420-430.											
	*	Shizgal P. Neural basis of utility estimation. Current Opin Neurobiol. 1997 Apr;7(2): 198-208.											
	*	Shizgal, P., Schindler, D., and Rompre, PP. (1989). Forebrain neurons driven by rewarding stimulation of the medial forebrain bundle in the rat: comparison of psychophysical and electrophysiological estimates of refractory periods. Brain Res. 499, 234-248.											
	*	Sikes, R.W., and Vogt, B.A. (1992). Nociceptive neurons in area 24 of rabbit cingulate cortex. I Neurophysiol. 68(5): 1720-1732	2.										
	*	Silfverskiold, P.,& Risberg, J. (1989). Regional cerebral blood flow in depression and mania. Arch. Gen. Psychiatry 46, 253-259.											
	*	Spiegler, 8.J., Mishkjn, M. (1981). Evidence for the sequential participation of inferior temporal cortex and amygdala in the acquisition of stimulus-reward associations. Bchav. Brdin Res. 3, 303-317.											
	*	Spinoza, B. The Ethics -Part III: On the origin and nature of the emotions. In: The Ethics. Elwes, R.H.M. (Ed). 1883 Princeton Univ. Press Princeton. New Jersey pp1-132.											
	*	Stein, E.A., Pankiewicz, J., Harsch, H.H., Cho, 1.K., Fuller, S.A., Hoffmann, R.G., Hawkins, M., Rao, S.M., Bandettini, P.A., and Bloom, A.S. (1998). Nicotine-induced limbic cortical activation in the human brain: a functional MRI study. Am. J. Psychiatry 155(8), 1009-1015.											
	*	Stern, C.E., and Passingham, R.E. (1996). The nucleus accumbens in monkeys (Macaca fascicularis): Il Emotion and motivation. Behav. Brain Res. 75, 179-193. Sutton, J.P., and Breiter, H.C. (1994). Neural scale invariance: an integrative model with implications for neuropathology. World											
	*	Conference on Neural Networks. 4, 667-672. Sutton, S.K., and Davidson, R.J. (1997). Prefrontal brain symmetry: a biological substrate of the behavioral approach and inhibition											
	*	systems, Psychological Science 8(3), 204-210.											
	*	Svoboda, K.R., Adams, C.E., and Lupica, C.R. (1999). Opioid receptor subtype expression defines morphologically distinct classes of hippocampal interneurons. J. Neurosci. 19(1), 85-95. Talbot, I.D., Marrett, S., Evans, A.C., Meyer, E., Bushnell, M.C., and Duncan, G.H. (1991). Multiple representations of pain in human											
	*	cerebral cortex. Science 251.1355- 1358.											
	*	Talairach, I., and Tournoux, P. (1988). Co-planar Stereotaxic Atlas of the Human Brain Thieme Medical Publishers, New York, 2 pgs.											
	*	Thut, G., Schultz, W., Roelcke, U., Nienhusmeier, M., Missimer, I., Maguire, R.P., and Leenders, K.L. (1997). Activation of the human brain by monetary reward. NeuroReport 8, 1225-1228.											
	*	Toile TR KaufmalU1 T, Siessmeier T, Lautenbacher S, Berthele A, Munz F, Zieglgansberger W, Willoch F, Schwaiger M, Conrad B, Bartenstein P. Region-specific encoding of sensory and affective components of pain in the human brain: a positron emission tomography correlation analysis. Ann Neurol. 1999 Jan;45(1):40-7.											
	*	Tootell RB, Hadjikhani N. Attention -brains at work! Nat Neurosci. 2000 Mar;3(3):206-208.											
	*	Tootell, R.B., Dale, A.M., Sereno, M.I., and Malach, R. (1996). New images from human visual cortex. Trends Neurosci. 19(11), 481-48										
<u>.</u>	*	Tootell, R.B.H., Reppas, J.B., Kwong, K.K., Ma1ach, R., Born, R.T Brady, TJ., Rosen, B.R., and Belliveau, J. W. (1995). Functional analysis of human MT and related visual cortical areas using magnetic resonance imaging. J. Neurosci. 15, 3215-3230.											
	*	Treede RD, Meyer RA, Raja SN, Campbell IN. Evidence for two different heat transduction mechanisms in nociceptive primary afferents innervating monkey skin. J Physiol (Lond), 1995 Mar 15;483 (Pt 3):747-58.											
	*	Tremblay L, Schultz w. Relative reward preference in primate orbitofrontal cortex. Nature. 1999 Apr 22;398(6729):704-8.											
	*	Tseng, L.F. and Wang, Q. (1992). Forebrain sites differentially sensitive to β-endorphin and morphine for analgesia and relea enkephalin in the pentobarbital- anesthesized rat. J. Pharmacol. Ex.p. Ther. 261(3), 1028-1036.	se of Me										
	*	Turken AU, Swick D. Response selection in the human anterior cingulate cortex. Nat Neurosci. 1999 Oct;2(10):920-4.											
	*	Urban MG, Zahn PK, Oebhart OF. Descending facilitatory influences from the rostral medial mediale secondary, but not primary hyperalgesia in the rat. Neuroscience. 1999 May;90(2):349-52.											
	*	Uytdenhoef, P., Portelange, P., Jacquy, J., Charles, G., Linowski, P., & Mendlewicz, J. (1983). Regional cerebnll blood flow and lateralized hemispheric dysfunction in depression. Brit. J. Psychiatry 143, 128-132.											
	*	Vaccarino, F.I., Bloom, F.E., and Koob, G.F. (1985). Blockade of nucleus accumbens opiate receptors attenuates the intraveno reward in the rat. Psychopharmacology 86, 37 -42.	ous heroir										
		Date Examiner											

TRADE.

MENT OF COMMERCE U.S. DEP PATENT AND TRADEMARK OFFICE

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

APPLICATION NO. 19/727,0 CHIPPIN TOP

APPLICANT

ATTY, DOC

MGH-004AUS

Hans C. Breiter et al.

2862

FILING DATE

December 4, 2000

U.S. PATENT DOCUMENTS

FILING DATE IF **EXAMINER** DOCUMENT NUMBER DATE NAME **CLASS SUBCLASS** APPROPRIATE* INITIAL OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.) Vogt. B.A., Wiley, R.a., and Jensen, E.L (1995), Localization of mu and delta opioid receptors to anterior cinqulate afferents and * projection neurons and input/output model of mu regulation. Exp. Neural. 135(2), 83-92. Volkow, N.D., Wang, G.J., Fischman, M. W., Foltin, R. W., Fowler, J.S., Aburnrad. N.N., Vitkun, \$., Logan, J., aatley, \$.1., Pappas. N. Hitzemann, R., and Shea, C.E. (1997). Relationship between subjective effects of cocaine and dopaminergic transporter occupancy. Nature 386, 827-830. Wang, H., aracy, K.N., and Pickel, V.M. (1999). u-opioid and NMDA-type glutamate receptors are often colocalized in spiny neurons within patches of the caudate-putamen nucleus. J. Comp. Neurol. 412(1), 132-146. Watanabe, M. (1996). Reward expectancy in primate prefrontal neurons. Nature 382, 629-632. Watkins LR, Wiertelak EP, McGorry M, Martinez J, Schwartz B, Sisk D, Maier SF. Neurocircuitry of conditioned inhibition of analogsia: effects of amygdala, dorsal raphe, ventral medullary, and spinal cord lesions on antianalgesia in the rat. Behav Neurosci. 1998 Apr; 112(2):360-78. Whalen, P J., Rauch, S.L., Etcoff, N.L., McInemey, S.C., Lee, M.B., and Jenike, M.A. (1998). Masked presentations of emotional facial expressions modulate amygdala activity without explicit knowledge. J. Neurosci. 18, 411-418. Wise RA. Addictive drugs and brain stimulation reward. Annu Rev Neurosci. 1996; 19:319-40. * Woodruff, G.N., McCarthy, P.S., and Walker, R.J. (1976). Studies on the pharmacology of neurons in the nucleus accumbens of the rat. * Brain Res. 115, 233-242. Woods, R.P., Cherry, S.R., and MaZ2.iotta, J.C. (1992). Rapid automated algorithm for aligning and reslicing PET images. J. Comput. Assist Tomogr. 16, 620-633. Wu MT, Hsieh JC, Xiong J, Yang CF, Pan HB, Chen YC, Tsai G, Rosen BR, Kwong KK. Central nervous pathway for acupuncture stimulation: localization of processing with functional MR imaging of the brain-preliminary experience. Radiology. 1999 Jul;212(1):133-Yaksh, T.L. (1997). Pharmacology and mechanisms of opioid analgesic activity. Acta. Anaesthesiol. Scand. 41(1 Pt 2), 94-111. Yaari, A., Eisenberg, E., Adler, R., Chronic pain in holocaust survivors, Journal of Pain and Symptom Management, Vol. 17, No. 3, March 1999, 1810-187. Yoshida, M., Yokoo, H., Mizoguchi, K., Kawahara, H., Tsuda, A.,, Nishikawa, T. Tanaka, M., Eating and drinking cause increased * dopamine release in the nucleus accumbens and ventral tegmental area in the rat: measurement by in vivo microdialysis, Neuroscience Letters, 139 (192) 73-76, May 1992. Yu. L.C., and Han, J.S. (1989). Involvement of arcuate nucleus of hypothalamus in the descending pathway from nucleus accumbens to periaqueductal grey subserving an antiinociceptive effect. Int. J. Neurosci. 48(1-2), 71-78. Zubieta, I.-K., Dannals, R.F., and Frost, 1.1. (1999). Gender and age influences on human brain mu-opioid receptor binding measured by PET. Am. I. Psychiatry 156(6),842-848. Zubieta, I.-K., Oorelick, D.A., Stauffer, R., Ravert, H.T., Dannals, R.F., and Frost, J.J. (1996). Increased mu opiod receptor binding detected by PET in cocaine-dependent men is associated with cocaine craving. Nat. Med. 2(II), 1225-1229. Examiner Date

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.
MGH-004AUS

APPLICATION NO. **09/729,665**

APPLICANT

Hans C. Breiter et al.

GRO

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

FILING DATE

December 4, 2000

U.S. PATENT DOCUMENTS

MADEN								U.	.S. PATENT DO	DCUMENTS			Þ
EXAMINER INITIAL		DOCUMENT NUMBER DATE NAME								CLASS	SUBCLASS	FILING DATE IF	
	*	3	9	9	8	2	0	9	12/21/76	Macvaugh			
 .	*	5	0	1	1	8	4	6	4/30/91	Gittos et al.			
	*	5	1	8	9	0	6	4	2/23/93	Blum et al.			
	*	5	5	5	2	4	0	6	9/3/96	Mendelson et al.			
·	*	5	5	5	9	1	2	5	9/24/96	Kulagowski et al.			
	*	5	6	5	6	2	6	7	8/12/97	Sagen et al.			
	*	5	9	2	5	6	3	4	7/20/99	Olney			
	*	6	0	1	5	7	8	6	1/18/00	Mascarenhas et al.			
	*	6	0	2	5	3	3	2	2/15/00	Mascarenhas et al.			
	*	6	0	2	5	3	6	8	2/15/00	Mascarenhas et al.			
	*	6	0	9	9	3	1	9	8/8/00	Zaltman et al.			
	*	5	2	3	4	6	8	0	8/10/93	Rogers, Jr. et al.			
	*	5	3	2	0	8	2	5	6/14/94	Kung			
	*	5	3	2	4	5	0	4	6/28/94	Roger, Jr. et al.			
	*	5	3	9	7	5	6	3	3/14/95	Rogers, Jr. et al.			·
	*	5	5	7	4	1	4	0	11/12/96	Pollack et al.			
	*	5	6	5	9	0	4	1	8/19/97	Pollack et al.			
	*	5	8	5	8	3	2	7	1/12/99	Pollack et al.			•
	*	5	9	5	8	5	9	6	9/28/99	Renshaw et al.			
		ļ											
Evenine		ı				т	Sata C	anaide	arad.				

Examiner

Date Considered:

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and considered. Include copy of this form with next communication to applicant.